

Don't just make great food. Make food good!

Etenia™ ES

A multifunctional clean label texturizer for creamy dairy products

Easy dispersable | soluble



Innovation by nature
since 1919



**CLEAN LABEL
CONFERENCE**

Content

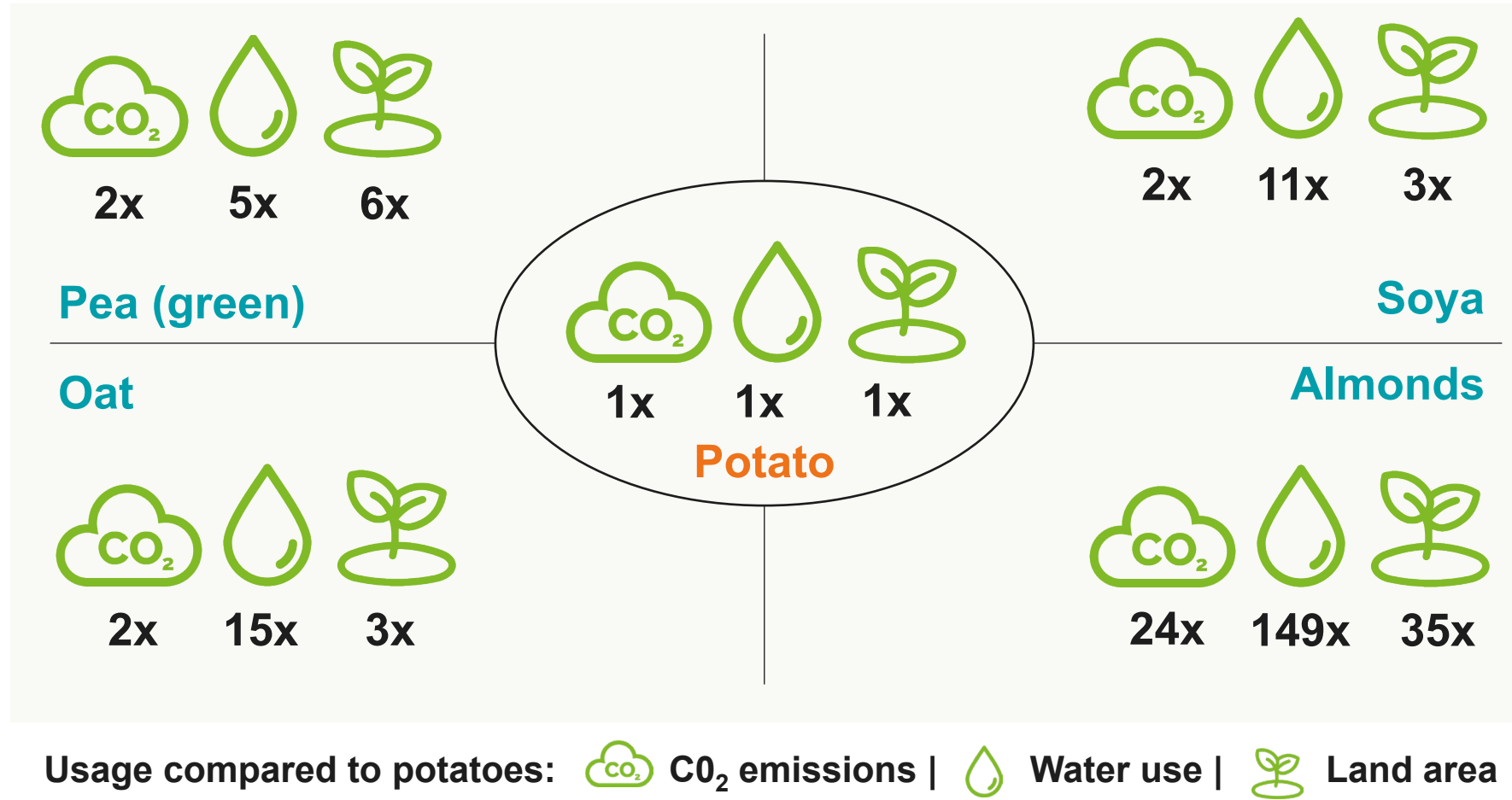
- Royal Avebe
- Avebe solutions
 - **Etenia™** clean label multifunctional food ingredient
 - *Yoghurt and spreadable cheese*
 - **Solanic©** potato protein
 - *Plant-based Dairy & Cheese applications*

About Royal Avebe

- Established in 1919; HQ in Veendam, NL
- No.1 in potato starch and potato protein
- Farmer's cooperative (2300 members)
- GTO € 600M; 1300 employees
- Production in N.W. Europe; Global sales
- Value chain: from field to food
- 3 strategic pillars:
 - **Growth in 'Good Food'**: plant-based, clean label
 - **Sustainable Potato Cultivation**
 - **Sustainable Processing**: lower CO₂ footprint



We can reduce the eco-footprint of our customers



You see potato, we see potential!

High quality
Protein

- Unique functionality

High quality
Starch & Fiber

Sensory

- Neutral Taste
- White Color

Highly
Sustainable

Label-friendly

- Guaranteed GMO free

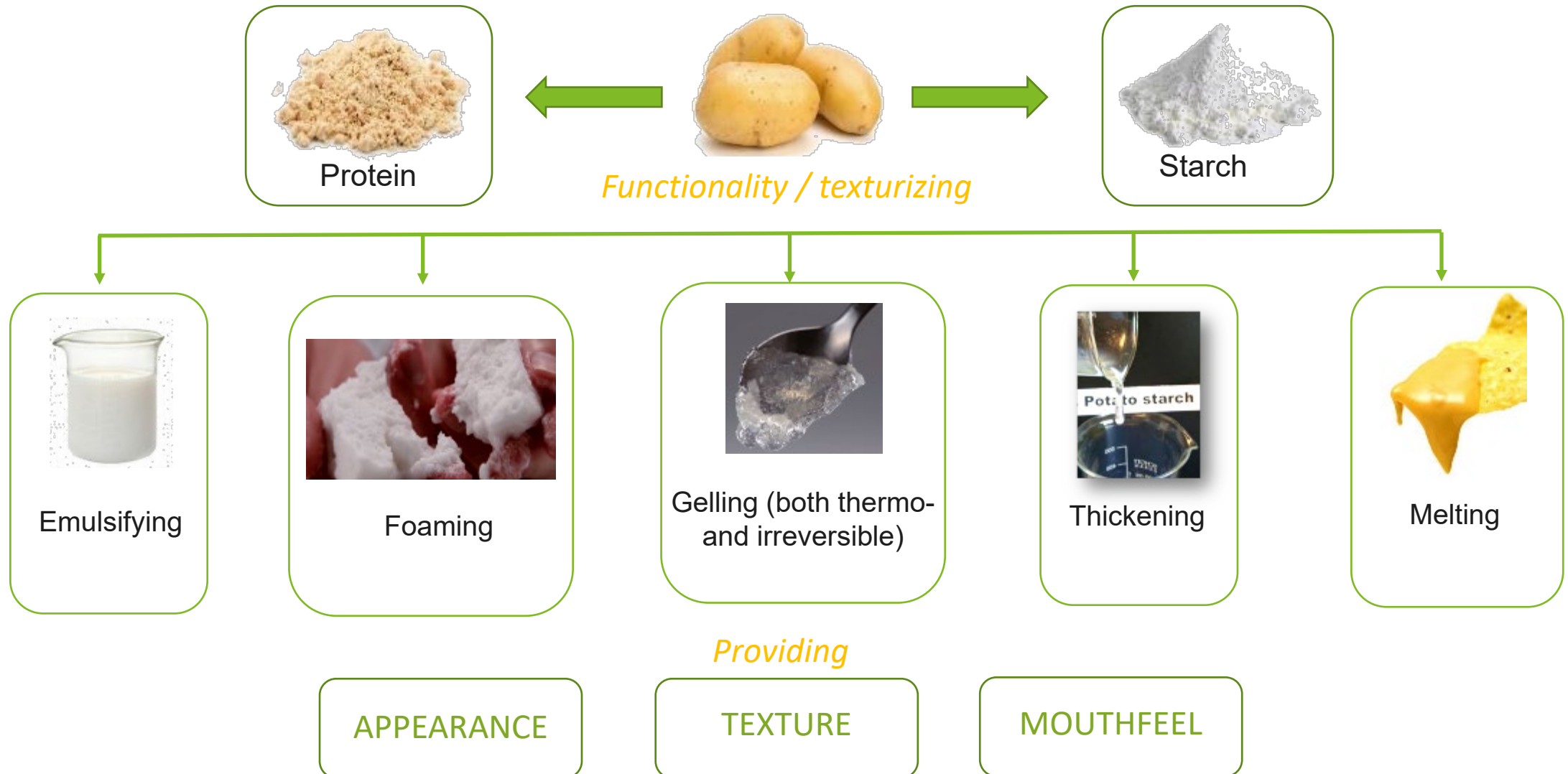


A woman in a white lab coat and hairnet is looking through a microscope. The background is a blurred laboratory setting. The left side of the image has an orange overlay.

Uniqueness of Potato based Ingredients

Plant-based and regular Dairy

Capabilities of ingredients from potato





Consumer needs

Higher demand **cleaner label together with a pleasant texture and taste** supported by the fact of strong growth in dairy and plant-based dairy

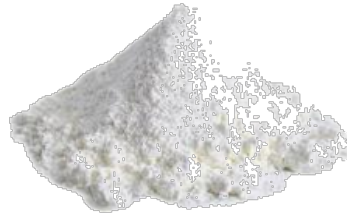
Challenges for manufacturers

- Poor solubility
- Less functionality (emulsifying, gelling, binding)
- Off-color and -taste
- Different texture (mouthfeel, juiciness, fibrosity)
- Misfit with current processes
- Labeling status (allergenicity, GMO, kosher/halal)

Avebe meets the challenge with **Etenia™**

**A multifunctional clean label texturizer for
creamy dairy products**





Potato

- Sustainable
- Environment-friendly
- Non-GMO
- Kosher and halal
- Neutral taste and white appearance

Potato starch

- Excellent texturizing properties
- High gelling power
- High viscosity and strong water binding
- Improved stability
- Clean neutral taste

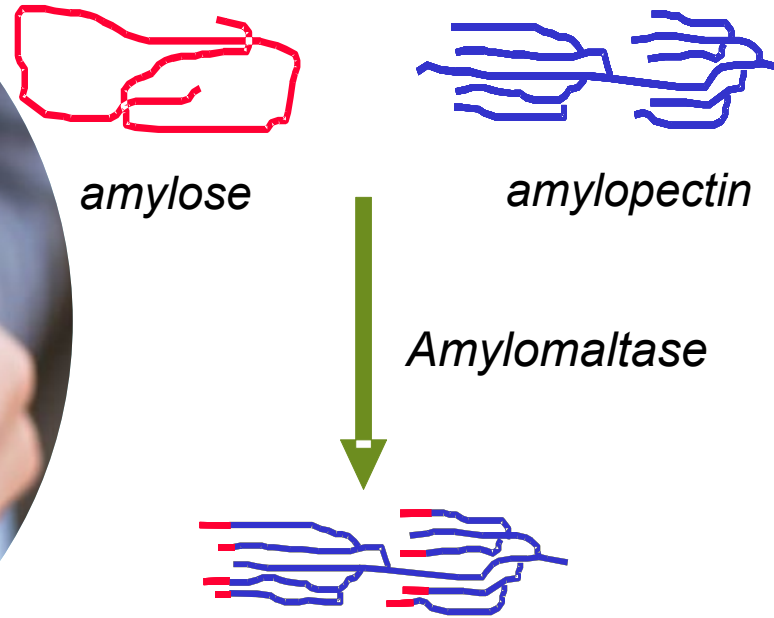
Etenia™

- **Fat, protein and gelatine replacement while maintaining textures**
- **Providing rich, creamy, smooth textures with excellent mouthfeel**
- **Easy Processing > not always the experience!**
- **No solubility issues**

Etenia™ | Innovation from Avebe



potato starch



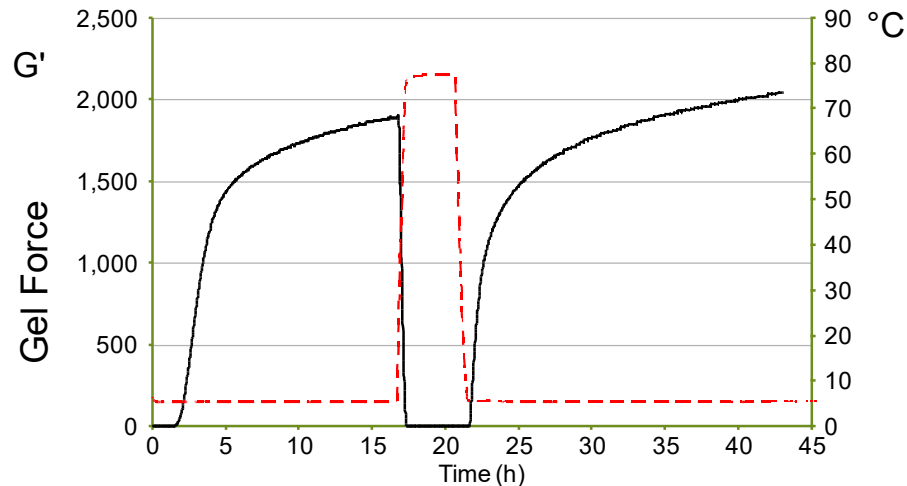
Etenia™

- Extension of amylopectin chains
- Amylopectin type hydrocolloid
 - Gum – type textures
 - Amylose free

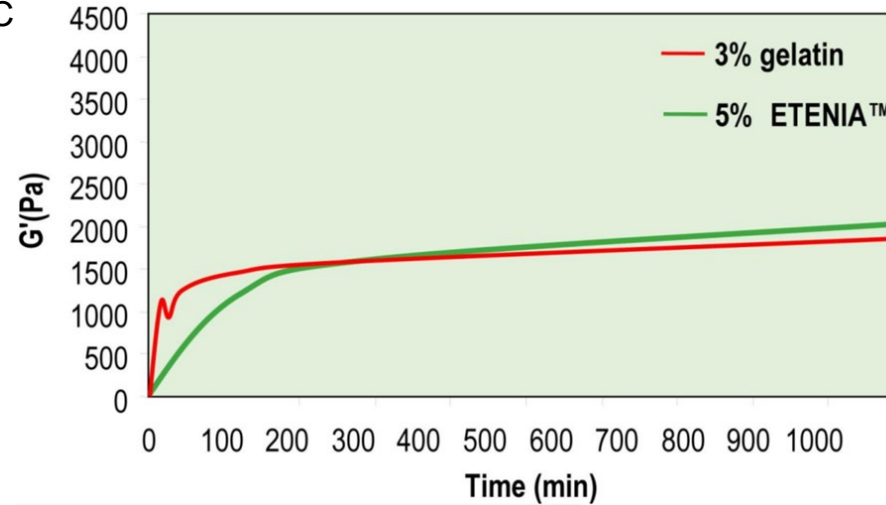
What is Etenia™ ?

- A unique **clean label potato starch**
- Hydrocolloid | **Gelatin like functionality** derived from starch
- **E-number free**
- Allows **replacement of milk fat, protein and/or hydrocolloids**
- An excellent product for **texturizing** dairy and plant-based dairy alternatives
- Kosher / Halal

Etenia™ ES | Thermo-reversability



5% in tap water

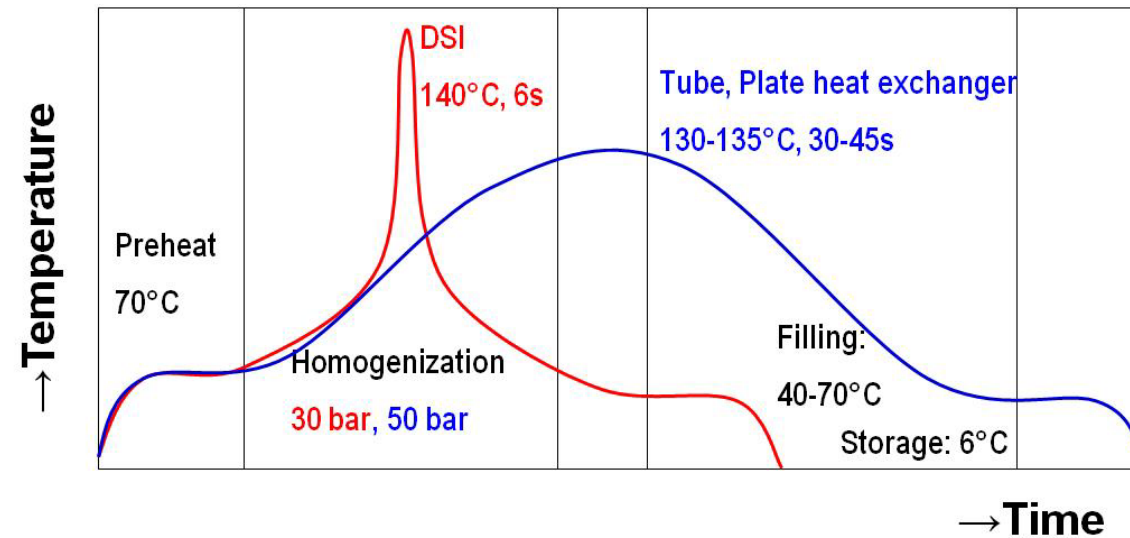


Etenia™ shows thermo-reversability through heating / cooling cycles

- 12-24 hours for building final texture (chilled)
- Highly process tolerant
- Low Hot Viscosity makes for easy processing
- Gel Strength development comparable to Gelatin



Etenia™ ES | Process Tolerant



- Easy to Use
- Highly process tolerant
- Works in most all existing processes



Case study

Multifunctional clean label texturizer for yoghurt or cream cheese



Benefits

Need to create a healthier clean label dairy products without compromising on taste & texture: **Etenia™** is a **unique clean label multi-functional** potato starch, **hydrocolloid alternative** that **replace milk protein/fat, label-friendly and cost-effective**

Textures can be differentiated by use level to deliver simple **mouthfeel enhancement** or added fat like qualities to low viscosity systems such **yoghurts, whey binding in yoghurt line (fresh cheese), valorize acid and/or sweet whey**

Cost benefits of Etenia™

Vs dairy fat *or* vs dairy protein

- ❖ **Etenia™ in dairy:** 1 % Etenia™ replace 1% pure Protein
- ❖ **Etenia™ in dairy:** 1 % Etenia™ replace 3% pure fat

Solution **Etenia™**

Application **Yogurt & Spreadable Cheese**

Functional Benefit



Try on Demo!

Extension | Etenia™ dairy range

Etenia™ multi-functional, easy dispersable clean label potato starch

Drinkable

Drinking products
(from whey)



Etenia™
*

Spoonable

Yogurt



Etenia™

Pudding Dessert
(from whey)



Etenia™
*

Spreadable

Cream/Fresh cheese
(no whey separation)
On a yoghurt line



Etenia™

Spreads
(from whey)



Etenia™
*

Etenia™ Dosage (%)

0.4 – 0,7

0,7 – 3,0

3,5 – 6

* depending on process and expected product, Eliane™ starch can be used for base viscosity

Non-fat Spoonable Yoghurt

Low-fat Greek Style Yoghurt



Table below shows 2 yoghurt recipes: Non-fat Spoonable Yoghurt and Low-fat Greek Style yoghurt

Ingredients	Non-fat Spoonable Yoghurt Dosage (%)	Low-fat Greek Style Yoghurt Dosage (%)
Etenia™ ES (potato starch)	1.0	1.5
Non-fat milk	80.7	86.4
Skimmed milk powder	2.8	2.2
Cream (40% fat)	-	9.9
Sugar	5.4	-
Starter culture	0.03	0.03
Fruit prep	10.0	-
Total	100	100

Etenia™ ES

The multifunctional texturizing and gelling solution for creamy dairy-based products. The product is perfectly tapping in into the need to make dairy products clean label, delicious, sustainable and guilt-free.

Preparation

- Standardize milk and cream. Mix it with Etenia™ ES
- Ferment during 4-6h at 37-42°C
- Cool to 8-10°C and smoothen the yoghurt
- Mix it with fruit preparation for Spoonable Non-fat Yoghurt
- Fill the cups and store at 4-6°C

Excellent spreadable cream cheese (100% Whey binding)

Table below shows two spreadable cheese recipes. The first recipe is with 24% fat and the second one is with 12% fat.

Ingredients	Cream cheese with 24% fat Dosage (%)	Cream cheese with 12% fat Dosage (%)
Non-fat milk	34.5	64
Cream (40% fat)	60	30
Etenia™ ES*	4.5	5
Salt	1	1
Total	100	100

* Potato starch

Etenia™ ES

The multifunctional **texturizing** and **gelling** solution for **creamy dairy-based** products. The product is perfectly tapping in into the need to make dairy products **clean label, delicious, sustainable and guilt-free**.

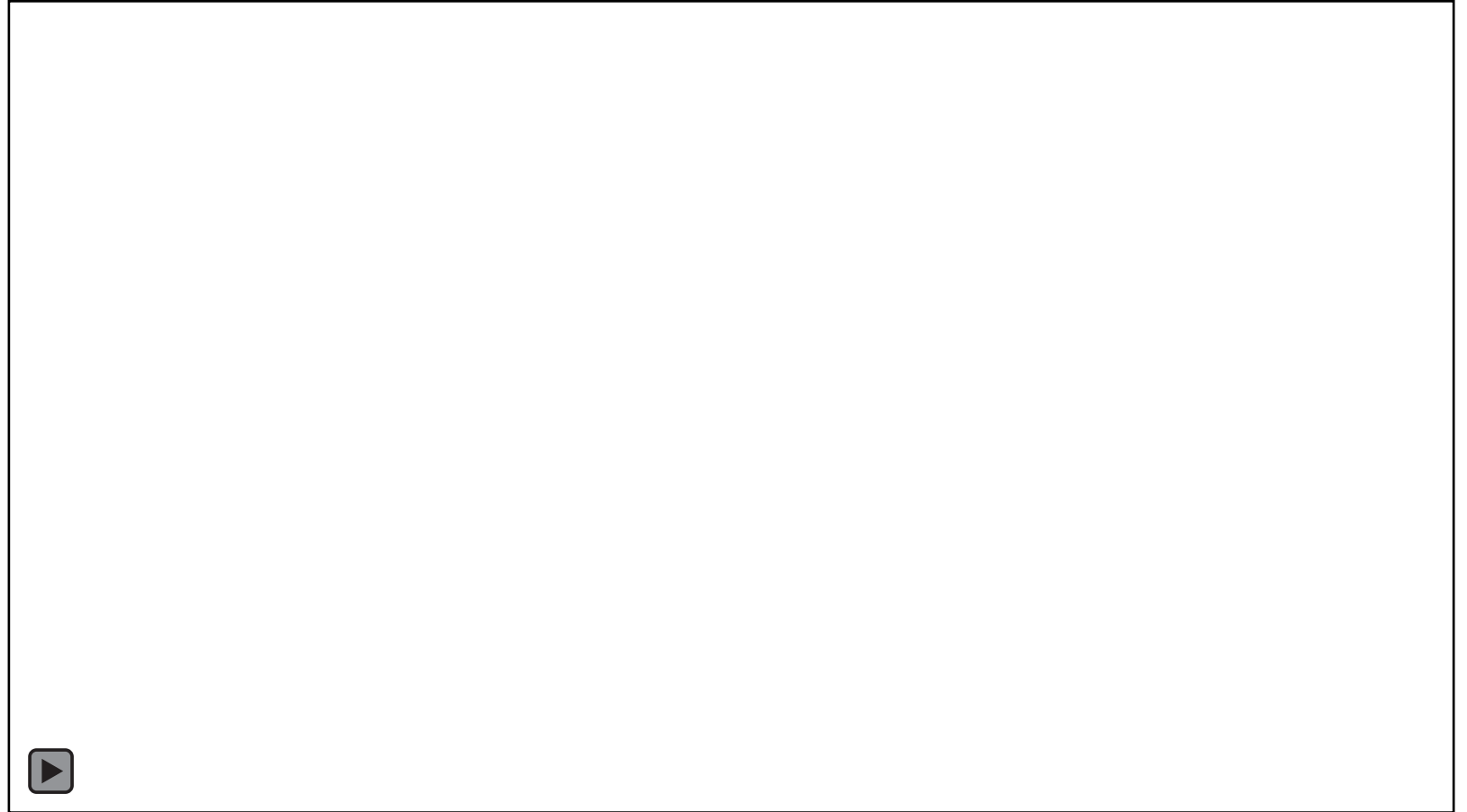
Preparation

- Standardize milk, cream and add Etenia™
- Homogenize at 150 + 50 bar
- Pasteurize for 15-20 sec at 72-75°C
- Ferment during 10-18h at 20-30°C (mesophilic)
- Homogenize 0-200 bar dep. on texture*
- Thermization for 2-5 min at 60-65°C*
- Mixing with salt and optional flavors, spices
- Cooling & filling

*Post fermentation homogenization and thermization are facultative, not mandatory



Etenia ES Video



You  <https://youtu.be/gARWeUPjSNc>

Regulatory information

- No use level limitation
- GRAS status is granted
- Brand name, **Etenia ES**
- Ingredient statement, *potato starch*

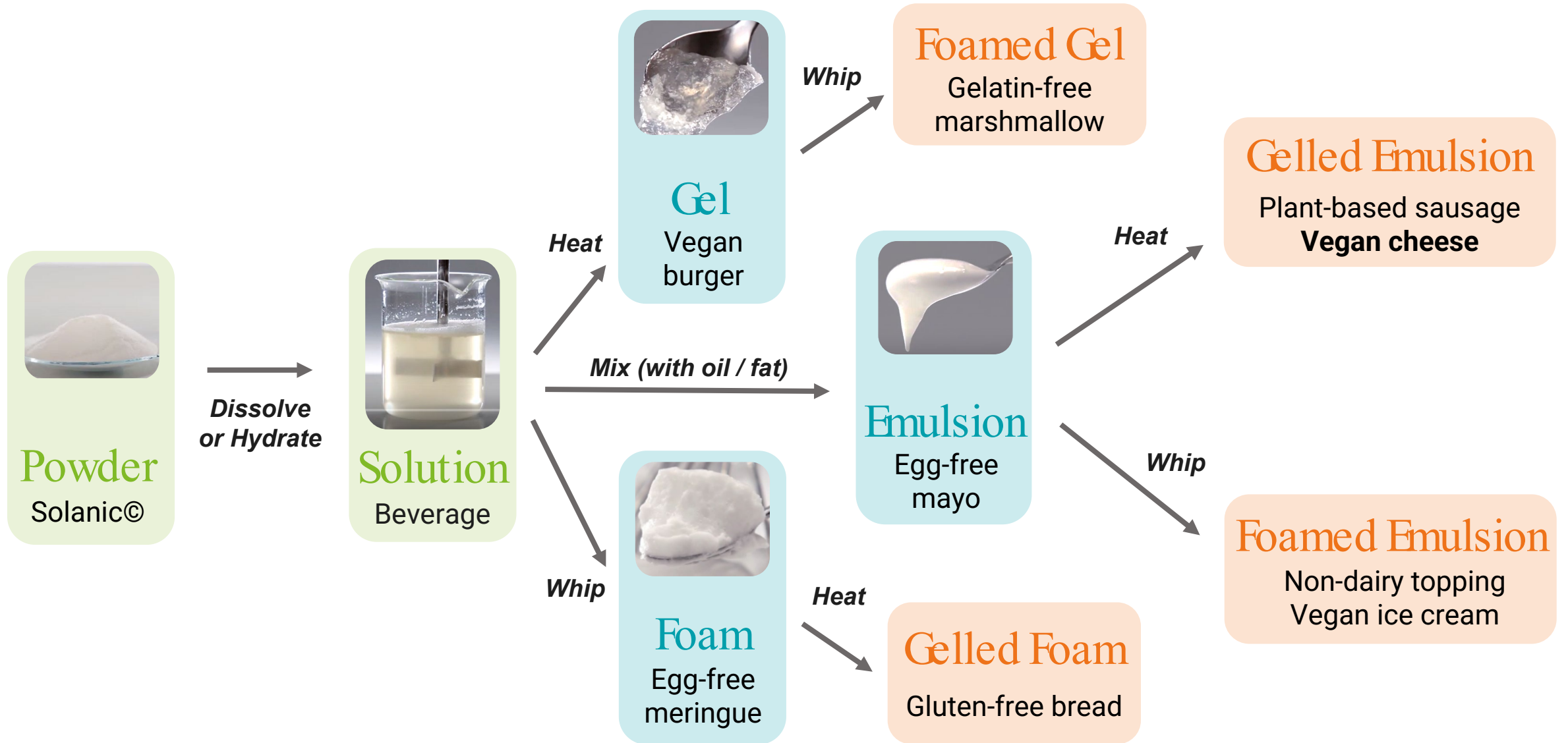


The background of the slide features three ice cream cones. The cone in the foreground is filled with a light pink ice cream containing small red fruit pieces. To its right is a chocolate ice cream cone, and behind them is a vanilla ice cream cone. The cones are resting on a light blue surface. On the far left, there is a vertical green bar with a blurred background of green leaves.

Potato protein

Plant-based Dairy & Cheese applications

Potato protein: Versatile functionality in many (plant-based) applications



Creating a texture range for Plant Based Dairy



Spoonable

Yogurt



Pudding
Dessert



Spreadable

Cream
cheese



Cuttable

Salad
cubes



Sliceable

Cheese
slices



Shreds

Pizza
cheese



Other solutions are also available

Drink



Ice Cream



Hard | Grated

Parmesan or
Grilled Cheese



*clean label, hard / extra hard grated
plant-based cheese, containing protein*



Thank You!

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**How can we
collaborate?**

**You're invited to explore
& taste our solutions!**